

Listing of the Claims:

The following is a complete listing of all the claims in the application, with an indication of the status of each:

1. (Currently amended) A method for detecting a dye bolus injected into the body of a living being, comprising the steps of:

injecting a non-specific fluorescent dye bolus into the body;

irradiating an optical excitation radiation into a predetermined region of the body the excitation radiation being chosen so as to excite a fluorescence radiation of the non-specific fluorescent dye; and

detecting the fluorescence radiation occurring on the surface of the body,

wherein

the time between the irradiation of said the optical excitation radiation and the occurrence of the fluorescence radiation caused by the excitation radiation is measured so as to determine the flight time of fluorescent photons through a tissue between a location of the dye bolus and the surface of the body,

and wherein the flight time is determined during the transit of the dye bolus through the tissue so as to obtain a profile of the photon flight time over the transit time of the dye bolus, the profile being used to evaluate the tissue.

2. (Previously presented) The method as claimed in claim 1, wherein the excitation radiation is emitted as a short pulse with a pulse width in the picosecond range.

3. (Previously presented) The method as claimed in claim 2 wherein the time course of the fluorescence radiation is determined with nanosecond or picosecond time resolution.

4. (Previously presented) The method as claimed in claim 1, wherein the frequency of the excitation radiation is blocked off by filtering for the detection of the fluorescence radiation.

5. (Previously presented) The method as claimed in claim 1, wherein simultaneously and in parallel to the detection of the fluorescence radiation the excitation radiation diffusely reflected from the body is detected.

6. (Previously presented) The method as claimed in claim 1 wherein the detection of the reflected excitation radiation is likewise carried out with time resolution.
7. (Previously presented) The method as claimed in claim 1, wherein the detected fluorescence radiation is evaluated by assessing the distribution of the measured time of flight of photons.
8. (Previously presented) The method as claimed in claim 7 wherein an increase of the mean flight time of the fluorescent light is used as an indicator for the start of the detected dye bolus.
9. (Previously presented) The method as claimed in claim 1, wherein the region irradiated by said excitation radiation is at the head in order to examine the brain.
10. (Previously presented) The method as claimed in claim 1, wherein the region irradiated by said excitation radiation is the area of the lungs.
11. (Previously presented) A device for detecting a fluorescent dye bolus injected into the body of a living being, comprising:
 - an optical radiation source (1) for irradiating an excitation radiation into the body (4), said excitation radiation being chosen so as to excite a fluorescence radiation of the fluorescent dye;
 - a detection arrangement for detecting a fluorescence radiation of the fluorescent dye; and
 - a measurement device for detecting a time difference between a time of irradiation of said excitation radiation and a time of detection of said fluorescence radiation.
12. (Previously presented) The device as claimed in claim 11, wherein the optical radiation source emits excitation pulses with the pulse within the picosecond range.
13. (Previously presented) The device as claimed in claim 11, wherein the detection arrangement (6-14) is designed to detect the time course of fluorescence radiation with nanosecond or picosecond time resolution.

14. (Previously presented) The device as claimed in claim 11, wherein the detection arrangement comprises an optical filter for blocking off the excitation radiation.

15. (Previously presented) The device as claimed in claim 11, wherein the detection arrangement comprises an additional detector branch for detection of excitation radiation diffusely reflected by the body in said region.

16. (Canceled).

17. (Currently amended) Method for detecting a dye bolus within the body of a living being, comprising the steps of:

injecting a fluorescent dye bolus into the body;

irradiating an optical excitation radiation into a predetermined region of the body, the excitation radiation being chosen so as to excite a fluorescence radiation of the fluorescent dye;

detecting the fluorescence radiation on the surface of the body, wherein a high frequency modulated light is used as the excitation radiation and the modulation depth and the phase of the fluorescence radiation are determined in order to determine the flight time of fluorescence photons,

and wherein the flight time is determined during the transit of the dye bolus through the tissue so as to obtain a profile of the photon flight time over the transit time of the dye bolus, the profile being used to evaluate the tissue.